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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,648	07/11/2006	Hiroki Sasaki	Q92478	2627
23373 7590 08/03/2007 SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			EXAMINER REDDY, KARUNA P	
			ART UNIT 1713	PAPER NUMBER
			MAIL DATE 08/03/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/565,648	Applicant(s) SASAKI ET AL.	
	Examiner Karuna P. Reddy	Art Unit 1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☒ Claim(s) 8 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>1/24/2006, 7/11/2006</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

1. Preliminary amendment filed on January 24, 2006 is made of record. Claims 1-8 are currently pending in the application.

Claim Objections

2. Claim 8 is objected to because of the following informality: Claim 8 lacks clarity and it is not clear if the absorbance at 910 nm is reduced by less than or equal to 70% when compared to a polymer which has only light hydrogen atoms.
Appropriate correction and clarification is required.

Claim Rejections - 35 USC § 102/103

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 5-8 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Sakunaga et al (US 4, 732, 716).

Sakunaga et al disclose an amorphous transparent polymer as an organic substance to be used for the core of optical filament. For example, a homopolymer of methyl methacrylate and a copolymer of at least 70% by weight of methyl methacrylate with up to 30% by weight of a monomer copolymerizable with methyl methacrylate such as norbornyl methacrylate and deuteration products of these polymers formed by substituting all or parts of hydrogen atoms of these polymers by deuterium atoms are preferably used (column 5, lines 31-50). Examiner has interpreted the 50% or more in claim 6 to be 100% and deuteration of all hydrogen atoms reads on claim 6.

As to the polymer of Claim 5 being produced from a composition comprising deuterated norbornyl methacrylate, it is written in a product-by-

process form and claims 6-7 are dependent on claim 5. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” See *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) and *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983).

As to claim 8, the prior art is silent with respect to absorbance at 910 nm.

However, in light of the fact that prior art teaches / discloses an optical member comprising essentially similar polymer as that of the claimed, one of ordinary skill in the art would have a reasonable basis to believe that optical member comprising polymer of prior art exhibits essentially the same property(ies). Since PTO cannot conduct experiments, the burden of proof is shifted to the applicants to establish an unobviousness difference. See *In re Fitzgerald*, 619 F.2d 67, 205 USPQ 594 (CCPA 1980).

Even if properties of the optical member comprising polymer of instant claims and prior art examples are not the same, it would still have been obvious to one of ordinary skill in the art to make optical member comprising polymer having the claimed properties because it appears that the references generically embrace the claimed optical member comprising polymer and the person of ordinary skill in the art would have expected all embodiments of the reference to

work. Applicants have not demonstrated that the differences, if any, between the claimed optical member comprising polymer and the optical member comprising polymer of prior art give rise to unexpected results.

Claim Rejections - 35 USC § 103

7. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al (US 4, 986, 648) in view of Koike (US 5, 767,200).

Kobayashi et al disclose that norbornyl (meth)acrylate can be prepared by esterification of norborneol with (meth)acrylic chloride or an ester exchange reaction with methyl (meth)acrylates (column 4, lines 57-66) and an optical resin material comprising a polymer containing as an essential component at least one norbornyl acrylate or methacrylate (abstract).

The prior art is silent with respect to deuteration of norbornyl (meth)acrylate.

However, Koike et al teach optical resin material wherein it is desirable to have high transparency i.e. transmittancy in the operating wavelength of an optical device. Optical absorbance attributable to expansion and contraction of the C-H bond interferes with absorbance peak wavelength in some cases and coincides with the operating wavelength. The 4th, 5th, 6th and 7th harmonics with an absorbance at 901 nm, 736 nm, 627 nm and 549 nm respectively fall within the wavelength region which is mainly used in the optical communication field.

Where the C-H bond of the molecules of the optical resin material are replaced by C-D bond, the above-mentioned peaks disappear. **The threshold transmission loss values are drastically improved compared with the case of C-H bond.** To obtain an optical resin material with its C-H bond replaced by C-D bond, an MMA-d8 monomer with its H-atom replaced by a D atom may be used for the polymerization to obtain a resin (column 14-61). Therefore, it would have been obvious to one skilled in the art at the time invention was made to replace the hydrogen atoms of C-H bond, in norbornyl (meth)acrylate of Kobayashi et al, with deuterium i.e. heavy hydrogen and obtain a resin for use in optical members with desirable transparency or transmittancy in the operating wavelength of an optical device.

As to the extent of dueteration of norbornyl methacrylate in claims 1-3, it is held that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. See *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977). See also *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). See also *Peterson*, 315 F. 3d at 1330, 65 USPQ 2d at 1382 ("The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation or desire to determine where in a disclosed set of percentage ranges is the optimum range of percentages). Therefore, in the absence of criticality or unexpected results, it would have been obvious to one skilled in the art at the time invention was made to alter the number of hydrogen atoms to be

replaced by heavy hydrogen in norbornyl (meth)acrylate of Kobayashi et al as a matter of routine optimization and arrive at the instant invention. Furthermore, the terms four or more, five or more and six or more in claims 1-3 are interpreted by examiner as being totally deuterated.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karuna P. Reddy whose telephone number is (571) 272-6566.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

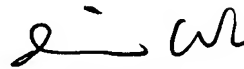
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Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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